REMARKS

Favorable consideration of this application is respectfully requested.

Claims 1-16 and 18-25 are currently active in this case.

In the outstanding office action, Claims 1 – 15, 18, 20 – 21 and 23 – 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Quigley, et al.* (US Patent No. 6,650,624, hereinafter *Quigley*), combined with references to *Strecker, et al.* (US Patent No. 4,777,595, hereinafter *Strecker*), *Perreault, et al.* (US Patent No. 6,169,728, hereinafter *Perreault*) and *Houck, et al.* (US Patent No. 5,920,571).

Applicants respectfully traverse the rejection of Claim 21 under 35 U.S.C. 103 as being unpatentable over *Quigley.* Claim 21 recites:

> *21. (Previously Amended) A method, for distributed downstream quality of service (QOS) processing in a broadband access system, the method comprising:*
>
> *measuring a quality of received packets in a downstream channel at a modem;*
>
> *comparing the measured quality with predetermined boundary conditions;*
>
> *determining whether the measured quality is within the predetermined boundary conditions;*
>
> *sending an exception to a network management server, if the measured quality is outside the boundary conditions; and*
>
> *modifying operating parameters for the downstream channel in accordance with the measured quality;*
>
> *wherein if the measured quality is below a lower boundary condition, the exception is sent with a high priority, and if the measured quality is above a high boundary condition, the exception is sent with a lower priority.*

However, the cited references fail to teach or suggest similar subject matter.

Applicants respectfully note that *Quigley* teaches a standard communications scheme with determines whether a channel which is being used for communications has a quality above or below a predetermined quality threshold. (e.g. *Quigley* column 36 line 44, and column 36 line 62). The entire purpose of *Quigley* is to place or avoid noisy channels so that communications can occur on higher quality channels (column 36 line 63-65, and Column 38 lines 8-12). In addition, *Quigley* avoids noisy channels (or otherwise increases the quality within a channel) by either changing frequencies or changing channel parameters when the quality of a channel falls below the predetermined threshold.

In contrast, although the present invention also improves or changes channels to improve quality when needed, the present invention goes further and is also directed to distributing the quality of service amongst the various channels. To that end the present invention utilizes a predetermined range or predetermined boundary conditions to which exceptions are reported when the quality of service is either below or above the predetermined boundary conditions (e.g., *"determining whether the measured quality is within the predetermined boundary conditions;"*) The predetermined range or boundary conditions are entirely different and in stark contrast to the conventional quality threshold as described in *Quigley*.

Moreover, the operating channels of the present invention are modified in accordance with the measured quality of that channel. However, not only does *Quigley* fail to teach the predetermined boundaries, *Quigley* only indicates channel parameter modifications if the channel quality falls below a quality threshold. In fact, *Quigley* fails to provide any mechanism or even suggest modification of parameters in a channel where the quality is above the predetermined boundaries. In contrast, Claim 21 specifically recites *"sending an exception to a network*

management server, if the measured quality is outside the boundary conditions," which includes being above a high boundary condition.

The claimed invention is further distinguished over *Quigley* because the claimed invention specifically recites *"modifying operating parameters for the downstream channel in accordance with the measured quality."* In this manner high quality channels can be redistributed for their needed and low channel low quality channels can be as well.

The claimed invention is yet further distinguished from *Quigley* because a different, but related exception is issued when the exception is caused by quality that breaches an upper boundary compared to when the exception is issued because quality falls below the lower boundary condition. *Quigley* fails to teach or suggest two different, but related boundary condition exceptions where one exception relates to conditions above an upper boundary and the second exception relates to conditions below a lower boundary.

And finally, the claimed invention is again yet further distinguished over *Quigley* because the two related exceptions are sent at different priorities and those priorities are uniquely assigned such that when, as specifically recited in Claim 21, *"the measured quality is below a lower boundary condition, the exception is sent with a high priority, and if the measured quality is above a high boundary condition, the exception is sent with a lower priority."*

Applicants further respectfully traverse the use of *Strecker* reference indicating Applicants claimed higher priority for lower boundary condition processing of the claimed exceptions. *Strecker* only teaches conventional normal priority and higher priority processing. While Applicants claimed out-of-bound exceptions below the lower boundary condition is a higher priority exception, it is a higher priority exception that is one of two out-of-range exceptions that operate in

tandem to implement the distributed processing of the claimed invention. Further, *Stecker* fails to make any suggestion that an exception indicating out-of-range quality below a lower boundary be of a higher priority compared to an out-of-range exception for quality above a higher boundary. Therefore, even if *Quigley* taught the specific upper/lower boundary conditions and parameters discussed further above, the *Quigley-Strecker* combination would still fail to teach or suggest Applicants claimed invention because the *Quigley-Strecker* combination fails to prioritize the out-of-range exceptions as recited in Claim 21. Accordingly, Applicants respectfully submit that Claim 21 is patentable over the cited references.

Applicants also respectfully traverse the rejection of Claim 22 under 35 USC 103(a) over *Quigley* in view of *Strecker* and *Perreault*. Claim 22 recites:

> **22. (Previously Amended) A method for distributed processing for optimal quality of service (QOS) in a broadband access system, the method comprising:**
>
> **a method for distributed upstream quality of service (QOS) processing, the method comprising:**
>
> **measuring a quality of received packets sent by a modem in an upstream channel at an upstream modem termination system;**
>
> **determining whether the measured quality is within a predetermined range;**
>
> **reporting an out-of-range quality for the received packets to a network management server; and**
>
> **modifying operating parameters for the upstream channel in accordance with the measured quality, if an out-of-range quality is reported; and**
>
> **a method for distributed downstream quality of service (QOS) processing, the method comprising:**
>
> **measuring a quality of received packets in a downstream channel at a modem;**
>
> **comparing the measured quality with predetermined boundary conditions;**

> *determining whether the measured quality is within the predetermined boundary conditions;*
>
> *sending an exception to a network management server, if the measured quality is outside the boundary conditions; and*
>
> *modifying operating parameters for the downstream channel in accordance with the measured quality;*
>
> *wherein:*
>
> *the exception is sent,*
>
> *at a first priority if the measured quality is below and outside the boundary conditions, and*
>
> *at a second priority if the measured quality is above and outside the boundary conditions; and*
>
> *the first priority is higher than the second priority.*

However, the cited references fail to teach or suggest similar subject matter.

Applicants respectfully note that Claim 22 includes a method for distributed downstream quality of service (QOS) processing, that utilizes out-of-range exceptions to determine when operating parameters of a downstream channel should be modified. Those out-of-range exceptions include an exception that is sent *"at a first priority if the measured quality is below and outside the boundary conditions, and at a second priority if the measured quality is above and outside the boundary conditions."* However, neither *Quigley, Strecker,* nor *Perreault* teach or suggest the same. Accordingly, Applicants respectfully submit that Claim 22 is patentable over the cited references.

Applicants respectfully traverse the rejection of Claim 1 under 35 U.S.C. 103 as being unpatentable over *Quigley.* Claim 1 recites:

> *1. A method for distributed upstream quality of service (QOS) processing in a broadband access system, the method comprising:*

measuring a quality of received packets sent by a modem in an upstream channel at an upstream modem termination system;

determining whether the measured quality is within a predetermined range;

reporting an out-of-range quality for the received packets to a network management server; and

modifying operating parameters for the upstream channel in accordance with the measured quality, if an out-of-range quality is reported;

wherein the out-of-range quality reported includes a measured quality above a high quality threshold and is reported at a higher priority than measured qualities below a low quality threshold.

However, the cited references fail to teach or suggest similar subject matter.

In particular, Claim 1 includes reporting out of range quality where measured quality is above a high quality threshold and if a measured quality is below a low quality threshold. However, the cited references fail to teach or suggest modifying parameters for an out-of-range quality above a high quality threshold. Claim 1 further recites *"modifying operating parameters for the upstream channel in accordance with the measured quality, if an out-of-range quality is reported,"* however, the same references also fail to teach or suggest any modification of parameters when an out-of-range is reported above the high quality threshold. Finally, Claim 1 includes a higher priority reporting for measured qualities above the high quality threshold, but the cited references fail to indicate the same. Accordingly, Applicants respectfully submit that Claim 1 is also patentable over the cited references.

Based on the patentability of independent Claims 1, 21, and 22, Applicants further respectfully submit that dependent Claims 2-16, 18-20, and 23-25 are also patentable.

Consequently, no further issues are believed to be outstanding, and it is respectfully submitted that this case is in condition for allowance. An early and favorable action is respectfully requested.

Respectfully submitted,

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